An Investigation on the Distribution of Hydrogen in Weld Joints of Medium Alloy Steels with Austenite and Ferrite Seams

tained results confirm the opinion that the subordinate part of hydrogen is a cause of crack formation near the weld joints (Ref. 10,2). Further investigations on factors affecting the resistance to crack formation to a larger extent than hydrogen does are needed.
There are 6 tables, 4 diagrams, 4 photos, 2 graphs and 10 references, 6 of which are Soviet, 3 English and 1 German.

ASSOCIATION: Institut elektrosvarki imeni Ye.O. Patona AN USSR (Institute of Electric Welding imeni Ye.O. Paton, AS UkrSSR)

SUBMITTED: September 5, 1958

SOV/128-58-11-10/24

AUTHOR: Lakomskiy, V.I.

TITLE: The Desulfurization of Liquid Cast Iron by Magnesium (O desul'furatsii zhidkogo chuguna magniyem)

PERIODICAL: Liteynoye proizvodstvo, 1958, Nr 11, p 18 (USSR)

ABSTRACT: Investigations with the use of a radioactive sulfur isotope of the kinetics and reactions of desulfurization by magnesium of liquid cast iron, revealed considerable activity by fume sublimates. Experiments showed that a certain amount of sulfur is carried away by fumes during the violent interaction of magnesium with cast iron. It is concluded that the reaction of liquid cast iron desulfurization by magnesium is heterogeneous and takes place on the surface of magnesium bubbles and fume jets. It was stated that under conventional modification conditions, 30 to 40 % of the sulfur is eliminated by the fumes reducing the sulfur content in the modi-

Card 1/2

fied cast iron to 0.01 or 0.02 %. Consequently, only 40 to 60 % of the eliminated sulfur pass from the metal into the slag. There is 1 diagram and 5 Soviet references.

1. Cast iron--Processing 2. Sulfur--Separation 3. Magnesium --Metallurgical effects 4. Sulfur isotopes (Radioactive) --Performance

18(7) PHASE I BOOK EXPLOITATION SOV/3456

Lakomskiy, Viktor Iosifovich, and Vladimir Ivanovich Yavoyskiy

Gazy v chugunakh (Gases in Cast Iron), Kiyev, Gos. izd-vo tekhn. lit-ry USSR, 1959. 167 p. Errata slip inserted. 1,200 copies printed.

Ed.: L. Raytburd; Tech. Ed.: N. Velichko

PURPOSE: This book is intended for technical personnel at machine-building and metallurgical plants. It may also be used by students specializing in the field of casting.

COVERAGE: The book deals with interactions between gases and foundry pig when melted in cupolas, flame furnaces, and electric furnaces, and utilizes recent data on the solubility of, and forms assumed by, hydrogen, nitrogen, and oxygen in cast iron. Attention is given to defects in castings caused by a high gas content (gas cavities, honeycomb blowholes, hot and cold cracks, superficial formation of cementite, etc.). The principal sources of gases in cast iron under conditions of melting, teeming, and formation of castings are described. Methods of controlling casting defects are discussed, and recommendations are given for reducing the gas content of cast iron and preventing

Card 1/6

the saturation of molten foundry pig with gases. There are 152 references, of which 90 are Soviet, 50 English, 5 German, 5 French, 1 is Czech, and 1 Japanese.

TABLE OF CONTENTS:

Gases in Cast Iron

SOV/3456

Card 6/6

VK/fal
4/12/60

SOV/125-59-8-12/18

18(7)
AUTHORS: Lakomskiy, V.I., and Vakhnin, Yu.N.

TITLE: The Influence of the Moisture Content of CO_2 on the Hydrogen Content in the Metal of a Seam

PERIODICAL: Avtomaticheskaya svarka, 1959, Nr 8, pp 85-89 (USSR)

ABSTRACT: This article deals with moisture in gas bags containing carbonic gas, and the effects of this moisture on the hydrogen content of seam metal welded with this gas. It is stated that gas bags with carbon dioxide often contain up to 400-500 g of water in a free state which remains in the bags due to insufficient emptying of them after washing. An experimental check has shown that the moisture of the (CO_2) gas increases more than 3 times for a change in pressure in the gas bag from 50 to 5 atmospheres (Table 1). Moisture of the gas was measured by the absorption method, described. Pouring off the water or using a drying agent (silica gel) produced similar results (Fig 1). For a sharp reduction in moisture of CO_2 the bags should be carefully dried out after washing, in which case the moisture of

Card 1/5

the gas in the bag is insignificantly small, and is not a function of gas pressure. It has been shown /Refs 6 and 7/ that during gas-electric welding in a carbonic gas medium the hydrogen content of the seam is greater with an increase in the moisture of the gas; carbonic gas with a low dew point (low moisture content) is recommended. Samples for determination of hydrogen content were turned from a cylinder which was fused to a plate of Kh18N9T steel 10 mm thick using austenitic wire type Kh18N9T, 2 mm in diameter. Welding conditions: I (welding) = 240 A, E = 26-27 V, welding speed = 16 m/hr, using DC current, reverse polarity; the wire was fed at 228 m/hr, gas at 1000 l/hr. Hydrogen content was determined by a vacuum heating method at 800 degree. In the basic metal 5.5 ml/100 g, and in the wire 5.0 ml/100 g of hydrogen were detected. The influence of the moisture of the gas on the hydrogen content in the seam, established for austenitic steel type Kh18N9T, was checked by weld-

The Influence of the Moisture of Carbonic Gas on the Hydrogen Content in the Metal of a Seam

ing low-carbon steel St.3 kp with Sv-10GS wire. Hydrogen content as a function of moisture was determined (Fig 2 and Table 2). It was found that hydrogen content in the seam metal with gas-electric welding is in direct relation to the moisture of the gas. To stimulate the formation of pores in the seam metal at an increased moisture level, experiments were carried out on angle seams under the following welding conditions: I (welding) = 320 A, E = 28-30 V, welding speed = 18 m/hr, using DC current, reverse polarity, and a gas flow rate of 1000 l/hr. At a moisture content (gas) of 1.92 g/m^3 and a hydrogen content of 4.7 ml/100 g, single pores were observed in the seam; with a moisture content of 15 g/m^3, corresponding to a hydrogen concentration of 5.5 ml/100 g, the seam was full of pores. In addition, the higher the concentration of hydrogen in the seam, the greater the area of macrocrystalline fracture. Experiments were carried out to determine the chemical composition of the gas phase

The Influence of the Moisture of Carbonic Gas on the Hydrogen Content in the Metal of a Seam

in the arc zone during gas-electric welding of Kh18N9T steel. A semi-micro-gas analyzer, constructed at the Institut elektrosvarki imeni Ye.O. Patona (Institute of Electric Welding imeni Ye.O. Paton), permitting analysis of gas samples of 1-3 ml, was used. Selected samples of steel, welded in a carbonic gas medium, dried by silica gel, contained 5-8% H_2, 58-65% CO, and 27-37% CO_2. With an increase in the moisture of the gas, the content of hydrogen in the atmosphere surrounding the arc increases. A single case was observed in which hydrogen reached 57%; a larger number of pores were found in the fused metal. In conclusion it is noted that silica gel is a sufficiently effective drying agent for carbonic gas, especially at low pressures. There are 2 graphs, 2 tables and 7 references, 6 of which are Soviet and 1 English.

Card 4/5

SOV/125-59-8-12/18

The Influence of the Dampness of Carbonic Gas on the Hydrogen Content in the Metal of a Seam

ASSOCIATION: Ordena trudovogo krasnogo znameni - Institut elektrosvarki imeni Ye.O. Patona (Order of the Red Banner of Labor - Institute of Electric Welding imeni Ye.O. Paton) AN USSR (AS Ukr SSR)

SUBMITTED: May 7, 1959

Card 5/5

LAKOMSKIY, Viktor Iosifovich; YAVOYSKIY, Vladimir Ivanovich; RAYTBURD, L., red.; GORKAVENKO, L., tekhn.red.

[Gases in cast iron] Gazy v chugunakh. Izd.2. Kiev, Gos. izd-vo tekhn.lit-ry USSR, 1960. 174 p. (MIRA 13:10)
(Cast iron) (Gases in metals)

LAKOMSKIY, V.I.

Composition of test baths for the analysis by vacuum melting of oxygen in welds. Avtom. svar. 14 no.4:88-90 Ap '60. (MIRA 14:4)

(Welding—Testing)
(Metals—Oxygen content)

S/125/61/000/002/004/013
A161/A133

AUTHOR: Lakomskiy, V. I.

TITLE: Determining the hydrogen content in aluminum welds

PERIODICAL: Avtomaticheskaya svarka, V.14 no. 2, 1961, 49-54

TEXT: A detailed description is given of a method and an apparatus for the hydrogen determination in aluminum welds, developed at the Electric Welding Institute im. Paton. The purpose of this development was to produce in the first line a dependable and simple unit for the analysis of metals with component elements having a low vapor pressure, i.e. all aluminum alloys except those containing magnesium and zinc. It was found in special tests that the Mg-content in analyzed alloys must be maximum 0.1%. The development of an analysis method for Al-Mg alloys is a separate problem. The specimen size is 10 mm in diameter and 15-16 mm long, and the weight 3.3 - 3.5 g. The unit is illustrated in a schematic diagram and a photo. It has a vacuum furnace with a graphite crucible, both degassed at 900°C in a common resistance furnace. The analysis is conducted in the presence of an idle bath of pure aluminum in the crucible. Aluminum sublimated during the degassing covers the internal surface of the furnace, and

Card 1/3

S/125/61/000/002/004/013
A161/A133

Determining the hydrogen content in aluminum welds

during the analysis the sublimations are deposited on the already existing layer. This eliminates analysis errors in the first test specimen. Hydrogen quantities of 0.1 - 1.5 milliliter 100 gr are determined clearly, and the volume of extracted hydrogen is determined with 2% accuracy. The entire unit is made of 3BC (ZVS) molybdenum glass, and the vacuum furnace and the diffusion mercury pump are of quartz. The 40 mm diameter furnace has a water-cooled copper head holding three glass sockets for samples and an observation window. The samples are dropped into the crucible by a magnet and polished nickel pushers. Water vapor and CO_2 are trapped in a trap placed between the furnace and the pump and cooled with liquid nitrogen. The quartz pump is for degassing the unit and extracting gas from the furnace. The furnace and the analytical part are degassed in turns. The analytical part consists of a palladium filter, a McLeod pressure gage and a ИТ-2 (LT-2) vacuummeter tube. The tube is the indicator showing the end of hydrogen filtering from the gas mixture. It is impossible to use it for measuring the gas pressures for the mixture has no constant composition and the heat transfer capacity of the extracted gases is different. The palladium filter is made of a ТР1 (TR1) thyratron bulb. A vertical pipe connects it with the analytical volume. The gas extraction from a sample does not take more than 20 min. The article includes a description of the filter operation and formulae

Card 2/3

used for the calculation of the hydrogen concentration in the specimen and in the filter. It is stated that the analysis results are matching the results obtained by Brant and Cochrau [Ref. 9: J. L. Brant and C. N. Cochrau, Gas Content of Solid Aluminum by Solid Extraction and Vacuum Fusion, "J. of Metals", 8, 12, 1956]. One full analysis cycle with three samples in the furnace head (dismantling, cleaning, charging, etc. and analysis) takes 5.0 - 5.5 hours. There are 4 figures, 2 tables and 9 references: 3 Soviet-bloc and 6 non-Soviet-bloc. The four references to the most recent English-language publications read as follows: C. E. Ransley and H. Neufeld, Solubility of Hydrogen in Liquid and Solid Aluminum, "J. of Inst. of Metals", 74, 599, 1948; G. Dardel, Hydrogen in Aluminum, "Metals Technology", 1948, Dec; C. B. Griffit and M. W. Mallet, Determination of Hydrogen in Wrought Aluminum Alloys, "Analytical Chemistry", 25, 7, 1953; J. L. Brant and C. N. Cochrau, Gas Content of Solid Aluminum by Solid Extraction and Vacuum Fusion, "J. of Metals", 8, 12, 1956.

ASSOCIATION: Ordena Trudovogo Krasnogo Znameni Institut elektrosvarki im. Ye. O. Patona AN USSR ("Order of the Red Banner of Labor" Electric Welding Institute im. Ye. O. Paton AS UkrSSR)

SUBMITTED: October 14, 1960

S/125/61/000/003/014/016
A161/A133

AUTHOR: Lakomskiy, V.I.

TITLE: Vacuum melting units for gas analysis in metals

PERIODICAL: Avtomaticheskaya svarka, V.14 no. 3, 1961, 102 - 104

TEXT: A brief description and photographs are given of two units for gas analysis that have been designed and built and have been used for 2 years at the Institut elektrosvarki im. Ye.O Patona (Electric Welding Institute im. Ye.O. Paton) to determine the content of oxygen, hydrogen and nitrogen in steel, cast iron, titanium, molybdenum, copper, chromium bronze, as well as other metals and metal powders. One unit has a resistance vacuum furnace, a quartz diffusion pump, a collector pump controlled by a command apparatus, and a semimicro gas analyzer with two burets of 20 and 5 ml capacity for analyzing larger or smaller gas volumes. The idle time correction at 1,600 - 1,650°C amounts to 0.08 - 0.10 ml in 15 min. The operation cycle of the unit is two 6-h days. On the first day it is taken apart, cleaned and prepared for operation, loaded with metal samples and degassed. The first 1.5 - 2 h of the second day are used for degassing the furnace, and the remaining time for the analysis. Twelve samples are analyzed in

Card 1/2

S/125/61/000/003/014/016
A161/A133

Vacuum melting units for gas analysis in metals

one operation cycle. The second analysis unit has a high-frequency heater - a ГЛ-15 (GL-15) generator heating the crucible to over 2,200°C. The crucible is insulated with graphite powder. The gas volume measurement is direct and more accurate than in the first unit. The extracted mixture of hydrogen, CO and nitrogen is passed over copper oxide. The oxidized hydrogen and CO are freezed and then fractioned in defreezing. The vacuum furnace heated by high-frequency current gives a very low idle-time correction, and samples analyzed in the second unit can be 8 times smaller than in the first. The mean relative determination error in steel is 3 + 8%. Six to eight samples are analyzed in one working shift. The unit requires skilled operators. [Abstracter's note: Essentially complete translation.] There are 2 figures.

Card 2/2

26484
S/125/61/000/009/008/014
D040/D113

1.2310 1140, 1138, 1573, 2708

AUTHORS: Lakomskiy, V.I.; Vykhrestyuk, N.I.

TITLE: A method of spot gas analysis in welded joints

PERIODICAL: Avtomaticheskaya svarka, 14, no. 9, 1961, 41-46

TEXT: A new gas analysis method is described by which gas content is determined in spots 0.5-1.0 mm in diameter melted by electron beam. It is based on electron bombardment in vacuum, used since 1958 in metal remelting and welding techniques (Ref.4: H.R.Smith, C.d'A.Hunt, C.W.Hanks, Electron Bombardment Melting, Pergamon Press, 164, 1959; Ref.5: H.Winterhager und W. Schlösser, "Zeitschrift für Technik, Industrie und Handel", 5, 396, 1960). The method principle is as follows: a specimen of maximum 30 by 10 by 10 mm size has to be ground and the spot to be analysed has to be polished flat; the specimen is placed into a vacuum chamber, and the polished spot on it melted by a focused electron beam during a fraction of a second. Gas liberating from the liquid metal pool flows into a mass spectrometer chamber for analysis. The duration of the electron beam pulse has to be controlled by

Card 1/4

A method of spot gas analysis ....

a precision time relay. The electron beam tube (Fig.1) of the new unit has a focusing system of Pirs design (Ref.6: Dzh.Pirs, Teoriya i raschet elektronnykh puchkov /The theory and calculation of electron beams/, M., 1956). The shape of the electrodes and the focusing method are adopted from other Soviet sources describing X-ray apparatus for structural analysis (I.Ye.Dudavskiy, and F.I.Chuprinin, "Zavodskaya laboratoriya", no.6, 1950). The cathode and anode electrodes are cones with opening angles of 35° and 140°. The cathode consists of a spiral of three turns of tungsten wire 0.3 mm in diameter. The optimum focus is produced when the apertures in the cathode and anode are 2 and 4 mm in diameter respectively. The cathode is placed in the electrode cone apex. The beam diameter is 0.15 to 0.3 mm at 60 mm distance from the anode when the beam current is 5-10 ma and the anode voltage 15-20 kv. The metal specimen is placed on a plate (5) (Fig.1), and the end of the rod under the plate is immersed into liquid nitrogen in a Dewar vessel to chill the specimen in the vacuum to -150°C. The article includes a brief description of gun design details and of the mass spectrometer analysis. A skeleton diagram of the analysis system is given. The content of hydrogen, nitrogen and oxygen can be determined in various

Card 2/4

A method of spot gas analysis ....

metals, but not all three of these gases in any metal, e.g. hydrogen only can be determined in titanium. The determination accuracy is high. The method is said to be suitable for studying the behaviour of gases in welding metals, the effect of gas content on intergranular brittleness, and in the development of methods for degassing metals. There are 5 figures and 10 references: 6 Soviet and 4 non-Soviet bloc. The two references to English language publications read as follows: E.G.Bobalek and S.A.Shrader, Determination of Hydrogen, Carbon and Nitrogen in Magnesium Alloys, Industrial and Engineering Chemistry, Analytical Edition, v.17, no.9, 1945; H.R.Smith, C. d'A. Hunt, C.W.Hanks, Electron Bombardment Melting, Pergamon Press, 164, 1959.

ASSOCIATION: Ordena Trudovogo Krasnogo Znameni Institut elektrosvarki im. Ye.O.Patona AN USSR (Electric Welding Institute "Order of the Red Banner of Labor", im. Ye.O.Paton, AN UkrSSR)

SUBMITTED: March 22, 1961

LAKOMSKIY, V.I.

Relation of gas moisture to pressure in the cylinder. Avtom. svar. 14 no.12:86-87 D '61. (MIRA 14:11)
(Electric welding)
(Protective atmospheres)

NASHEMPA, V.T.; LAKOMSKIY, V.I.

Analyzer of inert gas purity. Avtom.svar. 15 no.5:89-91 My '62. (MIRA 15:4)

1. Ordena Trudovogo Krasnogo Znameni Institut elektrosvarki imeni Ye.O.Patona AN USSR.
(Gases--Analysis) (Protective atmospheres)

LAKOMSKIY, V. I.

LAKOMSKIY, V.I.

Form of hydrogen existence in iron alloys. Avtom. svar. 15 no.7:50-57 Jl '62. (MIRA 15:7)

1. Ordena Trudovogo Krasnogo Znameni institut elektrosvarki imeni Ye.O. Patona AN USSR.
(Iron alloys—Hydrogen content)

LAKOMSKIY, V.I.

Solubility of hydrogen in liquid iron below the boiling point. Dokl AN SSSR 147 no.3:628-629 N '62. (MIRA 15:12)

1. Institut elektrosvarki im. Ye.O. Patona AN UkrSSR. Predastavleno akademikom B.Ye. Patonom.
(Iron—Hydrogen content)

LAKOMSKIY, V.I.

Determining hydrogen solubility in iron in a melting and boiling temperature range. Avtom. svar. 16 no.1:36-43, Ja '63. (MIRA 16:2)

1. Institut elektrosvarki imeni Ye.O. Patona AN UkrSSR.
(Iron--Hydrogen content) (Liquid vapor equilibrium)

LAKOMSKIY, V.I.; KALINYUK, N.N.

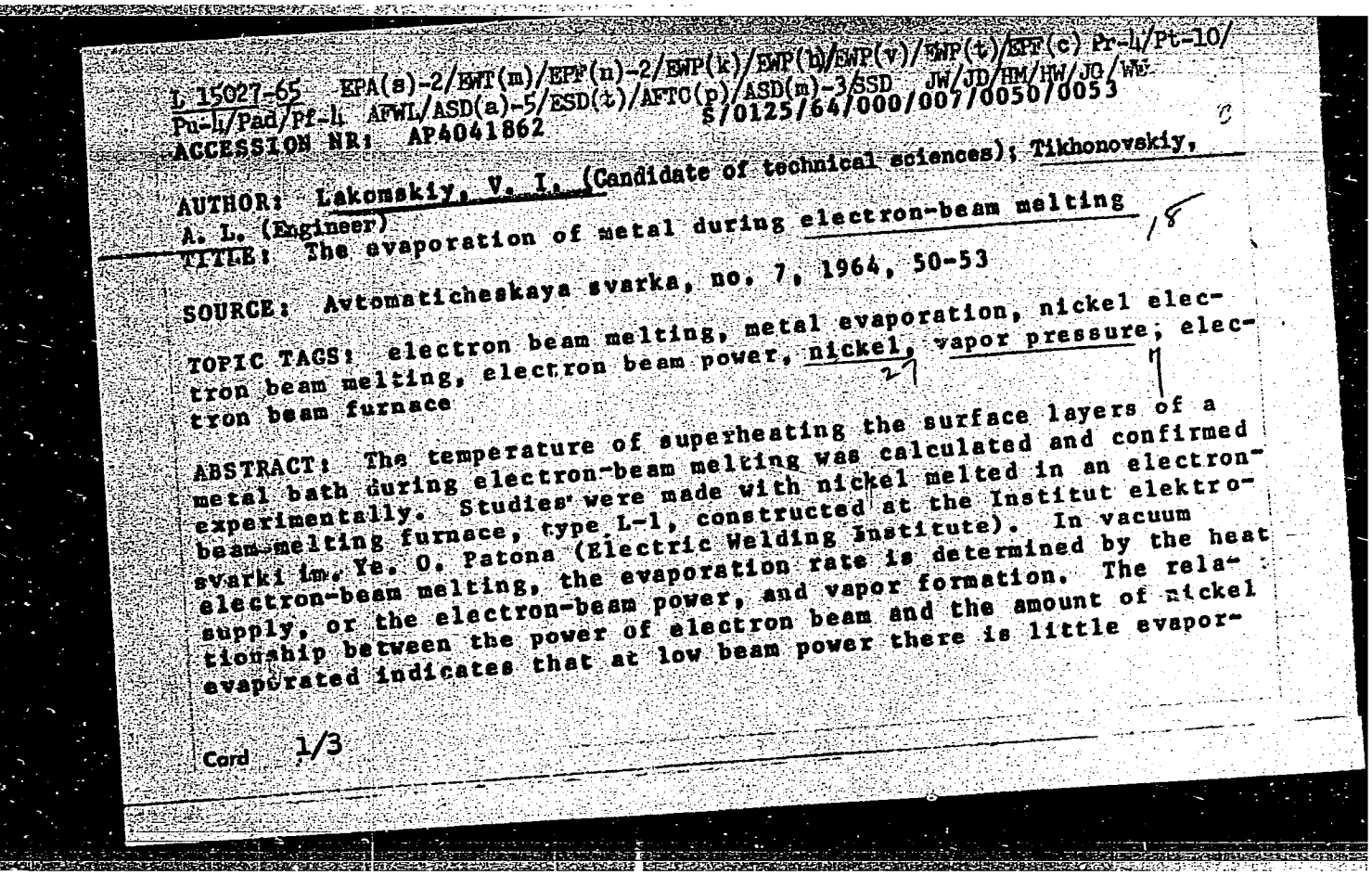
Hydrogen solubility in liquid titanium. Avtom. svar. 16 no.9: 31-35 S '63. (MIRA 16:10)

1. Institut elektrosvarki im. Ye.O.Patona AN UkrSSR.

LAKOMSKIY, V.I.; GUSACHENKO, G.F.

Interaction between hydrogen and metal in the arc gap during welding. Avtom. svar. 16 no.12:18-24 D '63. (MIRA 17:1)

1. Institut elektrosvarki imeni Patona AN UkrSSR.



L 15027-65 EPA(s)-2/EWT(m)/EPF(n)-2/EWP(k)/EWP(h)/EWP(v)/EWP(t)/EPF(c) Pr-4/Pt-10/
Pu-4/Pad/Pf-4 AFWL/ASD(a)-5/ESD(t)/AFTC(p)/ASD(m)-3/SSD JW/JD/HM/HW/JG/WB
ACCESSION NR: AP4041862 S/0125/64/000/007/0050/0053

AUTHOR: Lakomskiy, V. I. (Candidate of technical sciences); Tikhonovskiy, A. L. (Engineer)

TITLE: The evaporation of metal during electron-beam melting

SOURCE: Avtomaticheskaya svarka, no. 7, 1964, 50-53

TOPIC TAGS: electron beam melting, metal evaporation, nickel electron beam melting, electron beam power, nickel, vapor pressure, electron beam furnace

ABSTRACT: The temperature of superheating the surface layers of a metal bath during electron-beam melting was calculated and confirmed experimentally. Studies were made with nickel melted in an electron-beam-melting furnace, type L-1, constructed at the Institut elektrosvarki im. Ye. O. Patona (Electric Welding Institute). In vacuum electron-beam melting, the evaporation rate is determined by the heat supply, or the electron-beam power, and vapor formation. The relationship between the power of electron beam and the amount of nickel evaporated indicates that at low beam power there is little evapor-

Card 1/3

L 15027-65
ACCESSION NR: AP4041862

ation, but when the beam power is sufficient to overcome evaporation heat losses, increasing the heat flow significantly increases the amount of metal evaporated per unit of power increase. It is believed that the thin surface layer where the beam meets the metal accepts the energy of the retarded flow of electrons and becomes superheated. The temperature of the surface layer was calculated by the Langmuir formula from data on the amount of metal evaporated and the rate of evaporation. These values are in close agreement with readings taken with a TsEPIR-010 optical pyrometer. The relationship between the calculated surface temperature and the electron-beam power shows that the greater the power, the more of it was utilized in heating the metal bath (only 4.5 kilowatts were required to heat bath from 1630 to 1690C, while 6.2 kilowatts were required for heating from 1570 to 1630C). At a power value of 17—17.4 kilowatts nearly all of it is used to melt the billet and heat the metal drops to the bath temperature. The rapid increase in metal loss in the 1630—1690C range is explained by the increase in bath temperature and the greater increase in vapor pressure of the metal vapors. Orig. art. has: 4 figures and 1 table.

Card 2/3

L 15027-65
ACCESSION NR: AP4041862

ASSOCIATION: Institut elektrosvarki im. Ye. O. Patona AN UkrSSR (Institute of Electric Welding, ANUkrSSR)

SUBMITTED: 28Dec63 ENCL: 00 SUB CODE: MM

NO REF SOV: 003 OTHER: 000 ATD PRESS: 3143

Card 3/3

L 32475-65 EWT(m)/EPF(c)/EWP(v)/EWP(t)/T/EPR/EWP(k)/EWP(b) Pf-4/Pr-4/Ps-4
IJP(c) JD/HM

ACCESSION NR: AP4049513 S/0125/64/000/011/0001/0009

AUTHORS: Lakomskiy, V.I. (Candidate of technical sciences); Grigorenko, G.M. (Engineer)

TITLE: Hydrogen and nitrogen absorption by metal in electric arc welding

SOURCE: Avtomaticheskaya svarka, no. 11, 1964, 1-9

TOPIC TAGS: chemical absorption, electrical absorption, potential drop, welding current, gas concentration, hydrogen, helium atmosphere, nitrogen electric arc welding

ABSTRACT: The chemical reactions that occur during arc welding are referred to by the authors as "chemical absorption"; furthermore, so-called "electrical absorption" takes place during an arc welding process. The anode metal absorbs the gas chemically and the gas content is determined by standard solubility, the metal temperature and the partial gas pressure in the gas phase. The cathode metal absorbs the gas electrically. The gas concentration depends on the potential drop of the cathode, the welding current, the partial gas pressure in the arc atmosphere and the temperature

Card 1/3

L 32475-65

ACCESSION NR: AP4049513

2

of the metal. In using helium instead of argon, the electrical absorption increases at a much higher rate. An increased nitrogen content in the welds is attributed to the electrical absorption of gas and its low diffusion rate in iron in comparison with hydrogen. Since in a helium atmosphere the potential drop of the cathode is double that of argon welding, the saturation rate of the metal weld is higher despite an identical amount of hydrogen and nitrogen in the arc atmosphere. In order to produce high-quality welds in a helium atmosphere, the purity requirements should be higher than for an argon atmosphere. Small additions of oxygen to nitrogen intensify the diffusion in the metal as a result of an increased electrical absorption. Hydrogen loss is inhibited by using Al or its alloys instead of steel. The authors used a reverse polarity current in a gas atmosphere with different hydrogen additions. 0.81% H_2 in the helium gas produces pores in the weld while the use of even 1.1% H_2 in argon did not cause porosity of the weld. Orig. art. has: 4 figures, 2 tables and 4 equations.

Card 2/3

L 32475-65

ACCESSION NR: AP4049513

ASSOCIATION: Institut elektrosvarki im. Ye. O. Patona AN UkrSSR (Electric Welding Institute, AN SSSR)

SUBMITTED: 24Feb64 ENCL: 00

SUB CODE: MM NR REF SOV: 020 OTHER: 013

Card 3/3

L 5379-66 EWT(m)/EPF(c)/ETC/EPF(n)-2/EWG(m)/T/EWP(t)/EWP(z)/EWP(b)/EWA(c)

ACC NR: AP5027102 IJP(c) JD/WW/JW/HW/JG UR/0149/65/000/005/0135/0137
669.083.4

94
82
23

AUTHOR: Lakomskiy, V. I.

TITLE: Thermodynamic conditions of the degassing of metals during their vacuum remelting

SOURCE: IVUZ. Tsvetnaya metallurgiya, no. 5, 1965, 135-137

TOPIC TAGS: heat effect, heat of solution, heat of vaporization, vacuum degassing, thermodynamic process, refractory metal, gas

ABSTRACT: The author experimentally estimates the degassability of the system refractory metal-gas during the deep-vacuum (10^{-4} - 10^{-5} %) refining of the metal in electron-beam furnaces as based on the coefficient α, which represents the composition ratio of liquid to vapor

$$\alpha = \frac{1-N_i}{N_i} : \frac{1-N'_i}{N'_i}, \quad (1)$$

where N_i and N'_i are the mole fractions of the impurity component B_i in the solution and in the vapors, respectively. This coefficient is directly proportional to the concentration of gas in the metal and exponentially dependent on the melt temperature.

Card 1/2

0901 0307

L 5379-66

ACC NR: AP5027102

The calculations pertain to only those gases whose elimination from the metal is accompanied by complete disruption of bonds with the latter and recombination of the atoms of the gas into molecules at the metal surface (nitrogen and hydrogen). Formulas are derived showing that, the lower the gas content of the metal, the more difficult is the elimination of the gaseous impurity, and that in the case of the formation of endothermic (minus) solutions of gases in metals, e.g. of hydrogen and nitrogen in liquid Fe, Co, Ni, for which the heat of solution is negative ($-Q_{m-g}$), it is thermodynamically more expedient to perform the elimination of gases at relatively low temperatures. For exothermic (plus) solutions ($+Q_{m-g}$), such as hydrogen in Ti, Zr, Nb, V, which are characterized by a positive thermal effect, low temperatures also are favorable to degassing, since the doubled heat of solution ($2Q_{m-g}$) of hydrogen in these metals is always lower than the heat of vaporization Q_m of the metal ($2Q_{m-g} < Q_m$). If $2Q_{m-g} > Q_m$, high temperatures will contribute to the increase in α; no such instances could be found among the investigated systems, however, And if the difference between these quantities is insignificant, as in the case of the systems Nb-N and Ta-N, the temperature has virtually no effect on the degassing. Orig. art. has: 1 figure, 4 formulas.

ASSOCIATION: Institut elektrosvarki im. Ye. O. Patona AN UkrSSR (Institute of Electric Welding, AN UkrSSR)

SUBMITTED: 09May64 ENCL: 00 SUB CODE: TD, MM

NO REF SOV: 003 OTHER: 005

Card 2/2

L 64998-65 EWT(m)/EPF(n)-2/EWP(c)/EWG(m)/EWP(t)/EWP(k)/EWP(b)/EWA(c)
IJP(c) JD/EW/JG
ACCESSION NR: AP5021228 UR/0125/65/000/008/0079/0080
621 798.008.1

AUTHOR: Lakomskiy, V. I. (Candidate of technical sciences)

TITLE: New methods of making and working metallic materials

SOURCE: Avtomaticheskaya svarka, no. 8, 1965, 79-80

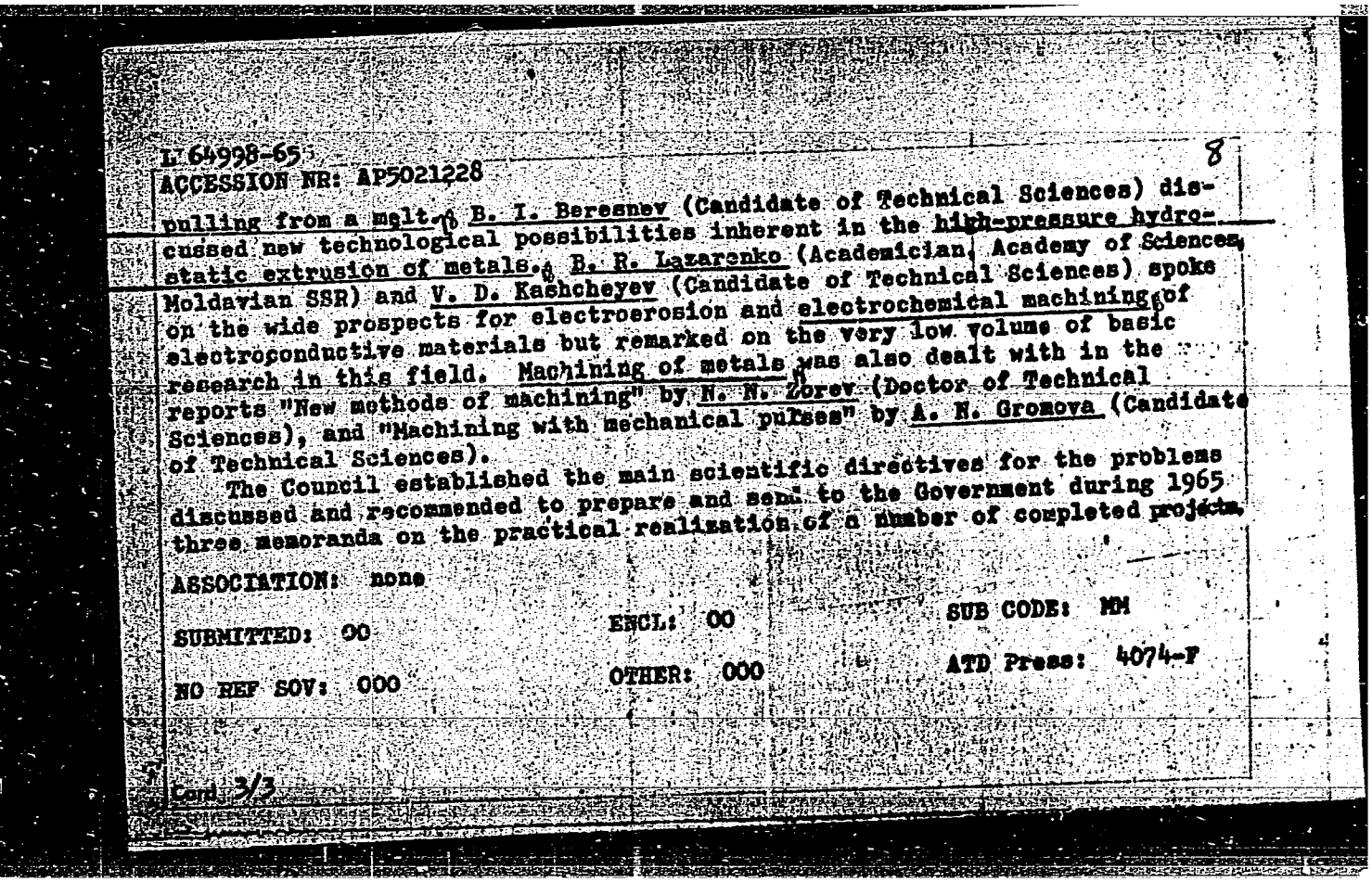
TOPIC TAGS: metallurgic conference, metallurgic research, metallurgic process, metal

ABSTRACT: The Scientific Council on "New methods of producing and working metallic materials" was organized at the Presidium of the Academy of Sciences USSR, in June 1965, to coordinate and direct the scientific research in this area. The Council includes prominent Soviet scientists and is headed by Academician B. Ye. Paton. The Council's function is to analyze the status and development of scientific research on new methods of production and treatment of metallic material in the Soviet Union and abroad, and to prepare for the Presidium of the Academy of Sciences USSR proposals on new research projects in the above field and on wide industrial application of completed projects. The Council consists of four sections: "Plastic and casting methods of manufacture" directed by Academician A. I. Tselikov; "Structural

Card 1/3

materials for new technology" directed by S. T. Kishkin. Corresponding Member of the Academy of Sciences USSR; Machining by high-energy sources directed by N. N. Rykalin, Corresponding Member of the Academy; and "Metallurgical methods of improving metals and alloys" directed by B. A. Movchan, Corresponding Member of the Academy.

The first session of the Council, held at the Electric Welding Institute in Ye. O. Paton in Kiev, 3-4 June 1965, was attended by about 100 scientists-specialists and representatives of the state agencies. Academician A. I. Tselikov spoke on the problems of continuous casting combined with rolling. The Scientific Council recognized the great possibilities of this process being developed at VNII metmash and urged its wide use in industry, particularly in the aluminum-alloy, copper-alloy, and steel industry. Academician B. Ye. Paton reported on arc, low-temperature plasma, electron-beam, and laser welding and facing. The energy aspects of high-temperature treatment of materials were discussed by N. N. Rykalin. I. I. Frumkin (Doctor of Technical Sciences) spoke on plasma-arc facing. Reports of B. A. Movchan and B. I. Medovar (Doctor of Technical Sciences) dealt with electron-beam and electroslag melting. S. T. Kishkin and L. O. Panasyuk (Engineer) described scull melting of refractory metals in vacuum-arc furnaces or in a high-pressure, inert-gas atmosphere. G. I. Pogodin-Alekseyev (Doctor of Technical Sciences) reported on new dispersion strengthened alloys. A. V. Stepanov (Doctor of Technical Sciences) described a new method of making shapes by



L 64998-65 8

ACCESSION NR: AP5021228

pulling from a melt. B. I. Beresnev (Candidate of Technical Sciences) discussed new technological possibilities inherent in the high-pressure hydrostatic extrusion of metals. B. R. Lazarenko (Academician, Academy of Sciences, Moldavian SSR) and V. D. Kashcheyev (Candidate of Technical Sciences) spoke on the wide prospects for electroerosion and electrochemical machining of electroconductive materials but remarked on the very low volume of basic research in this field. Machining of metals was also dealt with in the reports "New methods of machining" by N. N. Zorev (Doctor of Technical Sciences), and "Machining with mechanical pulses" by A. N. Gromova (Candidate of Technical Sciences).

The Council established the main scientific directives for the problems discussed and recommended to prepare and send to the Government during 1965 three memoranda on the practical realization of a number of completed projects.

ASSOCIATION: none

SUBMITTED: 00 ENCL: 00 SUB CODE: MM

NO REF SOV: 000 OTHER: 000 ATD Press: 4074-F

Card 3/3

LAKOMSKIY, V.I.

First session of the scientific council on new methods of producing and treating metallic materials. Avtom. svar. 18 no.8:79-80 Ag '65. (MIRA 18:11)

L 14548-66 EWT(m)/EPF(n)-2/T/EWP(t)/EWP(b) IJP(c) JD/WW/JG

ACC NR: AP6002429 SOURCE CODE: UR/0020/65/165/005/1091/1092

AUTHOR: Lakomskiy, V. I.; Kalinyuk, N. N.

ORG: Electric Welding Institute im. Ye. O. Paton, Academy of Sciences UkrSSR (Institut elektrosvarki Akademii nauk UkrSSR)

TITLE: Hydrogen solubility in liquid niobium

SOURCE: AN SSSR. Doklady, v. 165, no. 5, 1965, 1091-1092

TOPIC TAGS: niobium, liquid niobium, solid niobium, hydrogen solubility

ABSTRACT: Small niobium specimens were levitation melted in a mixture of hydrogen, whose partial pressure was varied from 7 to 62 mm Hg, argon, and helium and brought to a temperature of 2873—2923, 2931—2965, 2982—3014, or 3073—3093 K. After the equilibrium between hydrogen in the gaseous phase and in liquid niobium had been established for a certain range of temperatures, the metal was cast in a copper mold. It was found that the solubility of hydrogen in liquid niobium depends on temperature. The dependence can be expressed by the equation $\lg S_{50} = 1620/T + 0.9993$, where S_{50} is the solubility of hydrogen in liquid niobium at a partial pressure of 50 mm Hg, and T is the absolute temperature (°K). The solubility of hydrogen in liquid niobium is higher than in solid niobium but in both cases it decreases with increasing temperature. The rate of this decrease in liquid niobium is lower than that in solid niobium. At the melting point the solubility changes abruptly. The calculated heat

UDC: 541.8:669.788:546.882

Card 1/2

L 14548-66

ACC NR: AP6002429

of dissolution of hydrogen in liquid niobium amounts to 14,800 cal per mol of hydrogen. Orig. art. has: 1 figure. [WW]

SUB CODE: 11/ SUBM DATE: 12Apr65/ ORIG REF: 001/ OTH REF: 004/ ATD PRESS: 4199

07/

Card 2/2

L 22693-66 EWT(1)/EWP(e)/EWT(m)/ETC(f)/EPF(n)-2/EWG(m)/EWP(v)/T/EWP(t)/EWP(k)
ACC NR: AP6007281 IJP(c) (A) JD/HM/AT SOURCE CODE: UR/0226/66/000/002/0006/0009

AUTHOR: Lakomskiy, V. I.; Mel'nik, G. A.

ORG: Institute of Electric Welding im. Ye. O. Paton (Institut elektrosvarki)

TITLE: Spheroidization in high-frequency plasma discharge of aluminum oxide powder

SOURCE: Poroshkovaya metallurgiya, no. 2, 1966, 6-9

TOPIC TAGS: spheroidization, aluminum oxide, high temperature plasma, plasma arc, argon, heat transfer, metal powder, dissociation constant, plasma discharge

ABSTRACT: The paper deals with the spheroidization of aluminum oxide in a high frequency plasma, which is a very promising source of high temperatures. High frequency plasmotrons have no electrodes; therefore, the plasma generated by them is purer than arc plasma. In addition, oxidizing gases may be used to create the plasma. A short description of the apparatus used in the procedure of powder shperoidization is given. It is shown that on adding 10% oxygen to argon, heat transfer from the plasma to the powder particles increases. Furthermore, addition of oxygen depresses dissociation of aluminum oxides. The author notes the participation of Engineer V. A. Chudakov in the study. Orig. art. has: 3 figures. [Based on author's abstract.]

SUB CODE: 11,20/SUBM DATE: 26Jul65/ OTH REF: 002/

Card 1/1

L 38979-66 EWT(m)/T/EWP(t)/ETI IJP(c) JD/WW/JW/HW/JG

ACC NR: AP6013369 SOURCE CODE: UR/0370/66/000/002/0149/0155

AUTHOR: Lakomskiy, V. I. (Kiev); Kalinyuk, N. N. (Kiev)

ORG: none

TITLE: Solubility of hydrogen in liquid titanium and nickel

SOURCE: AN SSSR. Izvestiya. Metally, no. 2, 1966, 149-155

TOPIC TAGS: hydrogen, solubility, titanium, nickel, nonferrous ~~liquid~~ metal alloy, liquid metal

ABSTRACT: The solubility of hydrogen in liquid titanium was determined in the 2103-2580°K range at hydrogen pressures of 8-60 mm by the quenching method. Under these conditions, the system did not deviate from Sievert's law. The heat of solution of hydrogen in liquid titanium was found to be 21,680 cal/mole H_2. For β titanium, the range where Sievert's law applies at 1250°K is bounded by a concentration of 10 at.% H_2 in the metal, corresponding to a hydrogen pressure of 26.3 mm. The maximum concentrations are much lower for α titanium. As the temperature rises, the range of applicability of Sievert's law in the H_2-Ti system expands. It is postulated that the dissolution of hydrogen in liquid Ti will produce ideal solutions up to 1 atm H_2 pressure. Comparison of the free energies of solution of hydrogen in solid (β) and liquid Ti at the melting point shows that the free energy and solubility of H_2 increase from solid to liquid Ti because of a sharp increase in the entropy of the

Card 1/2 UDC: 669.788:541.8

L 38979-66

ACC NR: AP6013369

system. The hydrogen solubility in liquid nickel was studied in the range of -196 to 2900°K. The solubility curve goes through a maximum in the 2763-2773°K range. No deviations from Sievert's law were observed over the 15-40 mm range of hydrogen pressures and over the entire temperature range studied. The heat of solution of hydrogen in liquid nickel is 14,620 cal/mole H_2. As the temperature rises, the energy of reaction between hydrogen and nickel decreases. Orig. art. has: 5 figures, 4 tables, and 9 formulas.

SUB CODE: 11/ SUBM DATE: 23Oct64/ ORIG REF: 006/ OTH REF: 016

Card 2/2 MLP

L 38908-66 EWT(m)/T/EWP(t)/EWP(k)/ETI IJP(c) JD/JG

ACC NR: AP6021002 (A) SOURCE CODE: UR/0125/66/000/006/0021/0024

AUTHOR: Lakomskiy, V. I.; Kalinyuk, N. N.

ORG: Institut elektrosvarki im Ye. O. Paton AN UkrSSR

TITLE: Determination of hydrogen in niobium by the method of vacuum outgassing

SOURCE: Avtomaticheskaya svarka, no. 6, 1966, 21-24

TOPIC TAGS: niobium analysis, hydrogen determination, determination method, outgassing method, vacuum outgassing

ABSTRACT: A method for the determination of hydrogen content in niobium has been developed. The method is based on outgassing of thin niobium specimen in vacuum at 1400C. This temperature of outgassing was found experimentally. With niobium specimens 1.0—1.5 mm thick the outgassing is completed in 10 min. Heavier specimens require a longer time. The method has been successfully used for the last three years and showed a good reproducibility of results. Orig. art. has: 6 figures and 3 tables. [DV]

SUB CODE: 11/ SUBM DATE: 10Jun65/ ORIG REF: 004/ OTH REF: 006

Card 1/1 UDC: 621.791:669.293:669 788

L 43826-66 EWT(d)/EWT(m)/EWP(v)/T/EWP(t)/ETI/EWP(k)/EWP(h)/EWP(l) LJP(c)
ACC NR: AP6030265 (N) JD/HM/HW SOURCE CODE: UR/0125/66/000/008/0001/0005

AUTHOR: Paton, B. Ye.; Lakomskiy, V. I.; Dudko, D. A.; Zabarilo, O. S.; Pryanishnikov, I. S.; Toplilin, V. V.; Klyuyev, M. M.

ORG: [Paton; Lakomskiy; Dudko; Zabarilo] Electric Welding Institute im. Ye. O. Paton, AN UkrSSR (Institut elektrosvarki AN UkrSSR); [Pryanishnikov; Toplilin; Klyuyev] Elektrostal' Plant im. I. F. Tevosyan (Zavod "Elektrostal'")

TITLE: Plasma arc melting of metals and alloys

SOURCE: Avtomaticheskaya svarka, no. 8, 1966, 1-5.

TOPIC TAGS: plasma arc, metal melting, plasma arc melting, plasma arc furnace

ABSTRACT: A plasma arc furnace (see Fig. 1) for melting metals and alloys has been designed and built. The furnace is equipped with a PDM-3 plasma gun operating with a power input of 5—50 kw at a working voltage of 40—80 v and an open circuit voltage of 120 v. Ingots are 50—100 mm in diameter and up to 600 mm long. Several metals and alloys were melted in this furnace. It was found that the surface quality of the ingots was very high, there were no shrinkage holes, and the content of gaseous impurities was reduced significantly. For instance, the oxygen content in an NP-3 nickel (99.3% Ni+Co) dropped from $1.77 \cdot 10^{-2}$% to $3-7 \cdot 10^{-4}$% and the density of the metal increased from 8.804 to 8.8424 g/cm^3. The ingots were cold rolled from 75 mm to 0.10 mm with only one process annealing. In comparison with the original alloy, the formability improved 2—3 times, the rupture strength 40—60%, and elongation and

Card 1/2 UDC: 621.791:669.187.6

L 43826-66

ACC NR: AP6030265

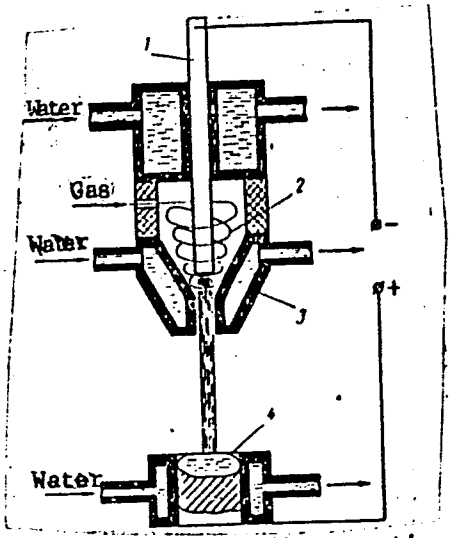


Fig. 1. Plasma furnace with direct action plasma gun

1 - Tungsten cathode; 2 - argon flow; 3 - water cooled nozzle; 4 - molten metal.

reduction of area 20—30%. Orig. art. has: 6 figures. [TD]

SUB CODE: 13/ SUBM DATE: 28Mar66/ ATD PRESS: 5072

Card 2/2

MAKARA, A.M., kand. tekhn. nauk; LAKOMSKIY, V.L., kand. tekhn. nauk; ZHOVNITSKIY, I.P., inzh.

Investigating hydrogen distribution in medium alloy steel welds with austenite and ferrite joints. Avtom. svar. 11 no.11:16-31 N '58. (MIRA 11:12)

1.Ordena Trudovogo Krasnogo Znameni Institut elektrosvarki im. Ye.O. Patona AN-USSR.
(Steel alloys--Welding)
(Steel--Hydrogen content)

LAKOMY, C., inz.

Simultaneous effect of the Reynolds and Mach numbers on the aerodynamic properties of plane compressor blade grids. Strojirenstvi 13 no.9:661-668 S '63.

1. Ceskomoravska-Kolben-Danek Praha.

L 62115-65 EWT(d)/EWP(w)/EWP(f)/EWP(v)/EPR/T-2/EWP(k) IJP(c) EM

ACCESSION NR: AP5019903 CZ/0032/64/014/012/0883/0887

AUTHOR: Lakomy, C. (Engineer); Vencovsky, J. (Engineer) 24

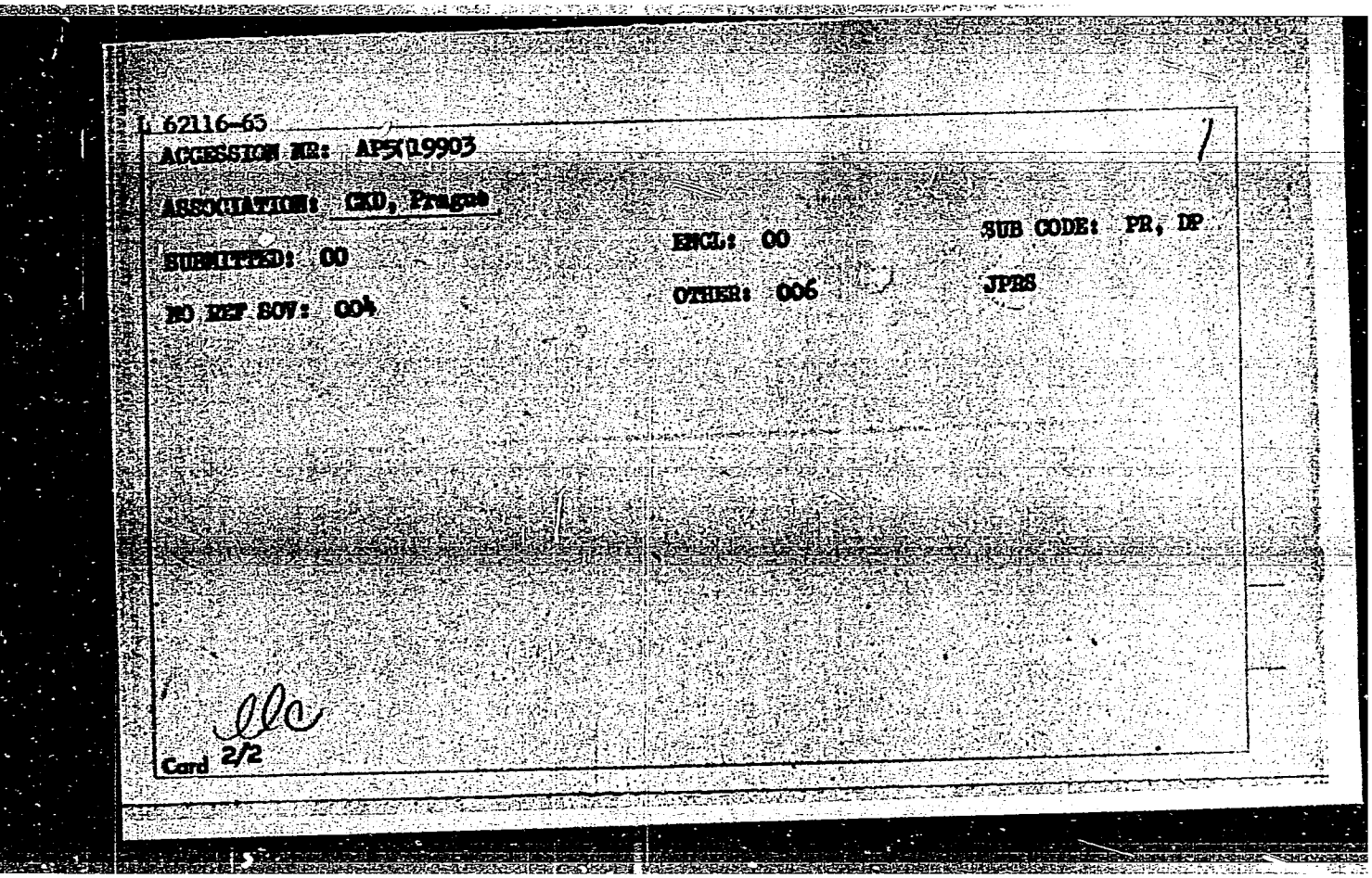
TITLE: Integral equations for calculating turbine blade cascades with computers 14

SOURCE: Strojirenstvi, v. 14, no. 12, 1964, 883-887

TOPIC TAGS: turbine blade, computer calculation, flow, flow velocity, integral equation 23

Abstract (Author's English summary, modified): The article deals briefly with the method elaborated by N. I. Zhukovskiy for calculating flow conditions in bladed turbine systems. The flow velocity potential is described with a system of integral equations in forms which permit solution with a ZUSE Z-3 digital computer. The method has been verified on several installations and its accuracy can be classified as very satisfactory, as indicated by comparison with the results obtained for similar machines in the NACA laboratories. The article demonstrates how experimental methods can be replaced by accurate calculations. Orig. art. has 15 formulas and 12 graphs.

Card 1/2



L 62116-65
ACCESSION NR: AP5019903

ASSOCIATION: CKD, Prague

SUBMITTED: 00 ENCL: 00 SUB CODE: PR, DP

NO REF SOV: 004 OTHER: 006 JPRS

llc

Card 2/2

L 36841-66 EWP(m)
ACC NR: AP6017041 SOURCE CODE: CZ/0041/66/000/001/0075/0088

42 B

AUTHOR: Lakomy, Ctibor--Lakomyy, Tstibor (Engineer)

ORG: CKD, Prague (CKD)

TITLE: Calculation of the flow about the compressor cascade at high subsonic speed

SOURCE: Strojnicky casopis, no. 1, 1966, 75-88

TOPIC TAGS: subsonic flow, compressor blade, compressor cascade

ABSTRACT: The article deals with the calculation of velocity distribution along the profile of a compressor cascade at high Mach numbers. It is based on the known Prandtl—Glauert method of transformation, modified in such a way that it can be used also for Mach numbers close to the critical value and for recent design shapes of compressor-blade cascades. New transformation correlations are obtained by the semiempirical method. The calculation results by the

Card 1/2

L 36841-66

ACC NR: AP6017041

above method were found to be in good agreement with experimental data. The paper was presented by O. Novak, Engineer. Orig. art. has: 11 figures, 28 formulas, and 1 table. [Based on author's abstract] [NT]

SUB CODE: 13,20/ SUBM DATE: 23Jan65/ ORIG REF: 004/ SOV REF: 003/ OTH REF: 002

Card 2/2

LAKOMY, F.

LAKOMY, F.

Casting a 21-ton gray-iron anvil. p. 81 (Slevarenstvi. Praha. Vol. 2, no. 3, Mar. 1954)

SO: Monthly List of East European Accessions, (EEAL), LC, Vol. 4, No. 6, June 1955, Uncl.

LAKOMY, J.

(27)

Prague, Collection of Czechoslovak Chemical Communications, Vol 27, No 4, April 1962, (continued)

stitute for Analytical Chemistry at Charles University, Prague; pp 1029-1030.

37. "Oxidimetric Determination of Trivalent Cerium Salts with Periodate," J. DOLEZAL, S. ROSSLER and J. ZYKA of the Institute for Analytical Chemistry at Charles University, Prague; pp1031-1033.

38. "Organic Quantitative Analyses. Part XXXX. The Micro Determination of Carbon in Organic Substances by Means of Measuring the Electric Conductivity and by Using Co_3O_4 as a Combustion Catalyst," M. VE-CERA, J. LAKOMY and L. LEHAR of the Research Institute for Organic Syntheses, Pardubice-Rybitvi; pp 1033-1037.

39. "Methods of Separating Natural Substances. Part V. The Determination of Morphine in Extracts from Poppy Shells," P. HORAK, J. HOLUBEK, V. BOMBA and Z. CEKAN, Research Institute for Natural Drugs, Prague; pp 1037-1042.

40. "Spectrophotometric Determination of Haptoglobin with the Modified Connel and Smithies Method," J. PINTERA of the Transfusion Station at the [Medical] Faculty in Brno; pp 1043-1045.

41. "Gas-Fluid Chromatography. The Relation between the Desired Elution Volumes and the Molecular Refraction of Organic Compounds," L. N. VOROBYEV, Chair of Organic Technology at the Chemical-Technological Institute in Prague; pp 1045-1048.

42. "Photooxidation of an Unidentified Component of Wood Acetone. Part II. Determination of the Ratios of the Isomers of Coproporphyrin I and III, Following Paper-Chromatographic Separation," V. HOLDCEK, Institute for Work Hygiene and Occupational Diseases, Prague; pp 1049-1053.

43. "Nucleic Acid Components and Their Analogues. Part XVII. Reaction of Uracil and of Its Aza Analogues with Ethylene Carbonate," M. PRYSTAS and J. GUT, Institute of Organic Chemistry and Biochemistry at the Czechoslovak Academy of Sciences, Prague; pp 1054-1056 (English article).

44. "Synthesis of 5-Desoxy-uridin," J. SMRT, Department of Organic Syntheses at the Institute of Organic Chemistry and Biochemistry, Czechoslovak Academy of Sciences, Prague; pp 1056-1058.

45. "Plant Substances. Part XIII. Tanacetin, the Bitter Principle of Tanacetum vulgare L.," M. SUCHY, Institute of Organic Chemistry and Biochemistry, Czechoslovak Academy of Sciences, Prague; pp 1058-1060 (English article).

LAKOMY, J.; LEHAR, L.; VECERA, M.

Organic quantitative anaysis. Pt. 35. Coll Cz Chem 28 no. 12:3271-3277 D '63.

1. Forschungsinstitut fur organische Synthesen, Pardubice-Rybitvi.

L 31759-66 EWP(j) RM

ACC NR: AP6021640 SOURCE CODE: CZ/0008/65/000/008/0985/0992

AUTHOR: Lakomy, Jaroslav; Lehar, Ladislav

ORG: Research Institute for Organic Synthesis, Pardubice-Rybitvi (Vyzkumny ustav organickych syntez)

TITLE: Measurements of the surface tension of chlorosilanes by means of the method of maximum bubble pressure

SOURCE: Chemicke listy, no. 8, 1965, 985-992

TOPIC TAGS: surface tension, silane

ABSTRACT: The method suggested by the authors is very suitable for the determination of surface tensions of chlorosilanes. Its main advantage is that it allows operations in a wide limit of temperatures, and protects the silanes from the influence of atmospheric moisture. Its disadvantage is that it requires a large apparatus and that it is time consuming; its accuracy is ± 0.5%, and that equals the accuracy of the best methods. Results obtained in work with monomethyl, dimethyl, trimethylmonochloro, tetrachloro, trichloro, monoethyldichloro, phenyltrichloro, and diphenyldichloro silanes are described. It was found that within the limits of the investigation, the surface tension changes as a linear function of temperature. Orig. art. has: 4 figures and 5 tables. [JPRS]

SUB CODE: 07 / SUBM DATE: 18Jul64 / ORIG REF: 003 / OTH REF: 017

Card 1/1 PB

JEHLICKA, Vl.; LAKOMY, J.

Polarographic determination of aromatic aldehydes in mixture.
Chem prum 15 no.3:163-165 Mr '65.

1. Research Institute of Organic Syntheses, Pardubice-Rybitvi.

ACCESSION NR: AT3013195 P/2507/63/013/040/0001/0004

AUTHOR: Lakomy, M.

TITLE: Minimization of multi-output switching circuits

SOURCE: Warsaw. Przemyslowy Instytut Telekommunikacji. Prace, v. 13, no. 40, 1963, 1-4

TOPIC TAGS: switching circuit, logic circuit, switching circuit minimization, logic function, Karnaugh diagram

ABSTRACT: Author proposes a method for minimizing multi-output logic networks utilizing several logic functions. This method is based on the Karnaugh diagrams /Karnaugh, M. "Communications and electronics" no. 9, 1953, 593-597/ and makes it possible to establish a logic network with a minimum number of diodes. In order to obtain a minimal form of the q input function of n variables, each function Fi (i = 1, 2... q) defining a logical relation which should be obtained at the i-th input, should be recorded on a Karnaugh diagram of n variables. Thus, q Karnaugh diagrams will be obtained. Next, the cards are compared to each other, grouping units (or zeros) in such a way that the

Card: 1/2

ACCESSION NR: AT3013195

highest possible number of compatible groups could be obtained. Each group appearing in K diagrams will be used K times to obtain k output functions. Orig. art. has: 5 figures.

ASSOCIATION: Katedra Konstrukcji Telekomunikacyjnych i Radiofonii Politechniki Warszawskiej (Department of Telecommunications Engineering and Broadcasting, Warsaw Polytechnic)

SUBMITTED: 25Aug62 DATE ACQ: 24Oct63 ENCL: 00

SUB CODE: CO, GE NO REF SOV: 000 OTHER: 006

Card: 2/2

HILDEBRANDT, A.; LAKOMY, M.

Ways of information recording on toroidal ferrite cores in fast memories. Przem inst telekom prace 14 no.45:25-37 '64.

1. Department of Computer Design, Technical University, Warsaw.

L 39652-65 EWT(d)/FBD/EED-2/EWP(1) Pg-4/Pk-4/Pq-4 IJP(c) GG/BB

ACCESSION NR: AT5006316 P/2507/64/014/045/0025/0037

AUTHOR: Hildebrandt, A. (Gil'debrandt, A.); Lakomy, M.

TITLE: Methods for recording information on ferrite ring cores in high speed memories

SOURCE: Warsaw. Przemyslowy Instytut Telekomunikacji. Prace, v. 14, no. 45, 1964, 25-37

TOPIC TAGS: ferrite core memory, nondestructive reading, destructive reading, multiple coincidence memory, ferrite bead memory

ABSTRACT: One or two ferrite cores are used in ferrite memory units for recording one bit. Either complete or partial core switching is used in both these classes of memory units. The degree of core switching may be determined from the switching factor which is given by the formula $\xi = \frac{\Phi_1 + \Phi_M}{\Phi_R + \Phi_M}$, where Φ_1 and Φ_R are the flux values which correspond to the states of the core, and Φ_M is the saturation flux. For complete switching, $\xi = 1$, for partial switching, $0 < \xi < 1$. Destructive and non-destructive reading methods are used. In the case of destructive reading, the in-

Card 1/3

L 39652-65

ACCESSION NR: AT5006316

formation contained in the cores can be read only once, while non-destructive reading allows multiple reproduction of the same information. The authors examine the fundamental relationships which hold during destructive reading with one and two cores per bit. A reduction in the switching factor cuts down on the reading time and reduces the amount of heat released in the cores. The value of ξ is more easily reduced in memories with two cores per bit than in those with one core per bit. One of the non-destructive reading methods is studied. In this method, a very short pulse is used in reading the memory which causes no irreversible changes in the core flux. The magnitude of the reversible changes in the core flux give information on the state of the core. Non-destructive reading makes it possible to cut the reading time more than in destructive reading when ξ is small. However the average cycle is short only when the reading process accounts for a considerable portion of the operations taking place in the memory unit. This is due to the fact that the recording time is rather large in this case since there must be a zeroing pulse which returns the core to its original state before each registration. The operation of both memory systems with short cycles is described and the basic parameters of the systems are given. Use of the multiple coincidence system is another method for speeding up the operation of cores in memory units. For instance when the selection ratio is 7:1 the selected core is switched by a current of $7I_s$ while the current in the other cores is I_s. Thus core switching takes place

Card 2/3

L 39652-65

ACCESSION NR: AT5005316

at a high speed. Multiple coincidence memory units have the disadvantage of requiring a great number of windings and control amplifiers. On the other hand, the parameters for the cores used in these memory units are not critical and the tolerance spread for the selection currents is greater than in a memory unit with a 2:1 selection ratio. Orig. art. has: 19 figures, 26 formulas.

ASSOCIATION: Katedra Budowy Maszyn Matematycznych, Politechnika Warszawska (Mathematical Machine Construction Department, Warsaw Polytechnical Institute)

SUBMITTED: 25Jul63 ENCL: 00 SUB CODE: DP

NO REF SOV: 000 OTHER: 016

Card 3/3

LAKOMY, Tadeusz

Application of closed ether-oxygen inhalation anesthesia in obstetrics. Gin. polska 29 no.5:533-538 Sept-Oct 58.

1. Z I Klinika Poloznictwa i Chorob Kobiecych Slaskiej A. M. w Zabrzu Kierownik Kliniki: doc. dr med. W. Starzewski Zabrze, Wolnosci 295/2.

(CESAREAN SECTION, anesth. & analgesia
ether-oxygen mixture, maternal & fetal mortal. statist.(Pol))
(ETHER, ETHYL, anesth. & analgesia
in cesarean section, with oxygen, maternal & fetal mortal. (Pol))
(OXYGEN, ther. use
in cesarean section, with ether anesth., maternal & fetal statist. (Pol))

GLOWINSKI, Mieczyslaw; LAKOMY, Tadeusz; LIMANSKI, Marian; ROZANOWICZ, Andrzej

Blood serum electrophoregrams in normal women several weeks after the conception and their utilization in the study of pathological conditions in pregnancy. Gin. polska 32 no.4:423-441 '61.

1. Z Kliniki Poloznictwa i Chorob Kobiecych Slaskiej AM w Zabrzu. Kierownik: prof dr W. Starzewski. Z Zakladu Higieny Ogolnej Slaskiej AM w Zabrzu. Kierownik: prof. dr med. B. Nowakowski. Z Wojewodzkiej Przychodni Immunopatologii Ciazy i Noworodka w Katowicach. Kierownik: dr med. M. Skorczynski

(PREGNANCY blood)
(BLOOD PROTEINS in pregn)

POLAND

KLYSZEJKO, Czeslaw, LAKOMY, Tadeusz, and PAPIEROWSKI, Zbigniew, Second Clinic of Obstetrics and Gynecology (II Klinika Poloznictwa i Chorob Kobiecych), AM [Akademia Medyczna, Medical Academy] in Gdansk (Director: Prof. Dr. med. Wojciech GROMADZKI)

"Effect of Trichloroethylene During Labor in Women as Compared to In vitro Results."

Warsaw, Polski Tygodnik Lekarski, Vol 18, No 36, 2 Sep 63, pp 1333-1338

Abstract: [Authors' English summary modified] Authors studied, by means of "Lorand" tocograph, the effect of trichloroethylene (Polfa)(using "Emotril" inhalator) on the uterus in 60 deliveries. About 50% showed shortening of first period of labor due to contractive action of drug, while about 30% showed effects of its spasmolytic action. In vitro study of sections taken at Caesarian sections with photoelectric LT-type recorder showed that small amounts of drug stimulated, and larger amounts inhibited the contraction of uterine tissue. 10 refs: 4 each Polish and Western, 2 German. 1/1

LAKOMY, Tadeusz; ULMAN, Jozef.

A case of ovarian neoplasm in pregnancy. Ginek. pol. 34 no.6: 733-736 '63.

1. Z Oddzialu Poloznictwa i Chorob Kobiecych Szpitala Miejskiego w Tychach; p.o. ordynatora: dr. med. T.Lakomy.

*

LAKOMY, Tadeusz

Attempted registration of oviduct kinetics. Ginek. pol. 35 no.1:87-92 Ja-F'64

1. Z II Kliniki Poloznictwa i Chorob Kobiecych AM w Gdansku; kierownik: prof.dr.med. W.Gromadzki.

LAKOMY, Tadeusz; SKORUS, Jerzy; ULMAN, Jozef

A case of liver rupture in labor in a full-term fetus. Ginek. pol. 35 no.1:125-129 Ja-F'64

1. Z Oddzialu Poloznictwa i Chorob Kobiecych Szpitala Miejskiego w Tychach, Katowice; dyrektor: dr. med. M.Szajna; p.o.ordynator Oddzialu Polozn. ginekol.: dr. med. T.Lakomy.

*

LAKOMY, Tadeusz

The problem of artificial abortion according to data of the II Obstetric and Gynecologic Clinic of the Gdansk Academy of Medicine. Ginek. Pol. 35 no.3:413-419 My-Je '64

Electronic tocograph for external tocography. Ibid.:429-434

1. Z II Kliniki Poloznictwa i Chorob Kobiecych Akademii Medycznej w Gdansku (Kierownik: prof. dr. med. W.Gromadzki).

LAKOMY, Tadeusz; OMELIANOWICZ, Jan

On the action of X-irradiation on kinetics of human fallopian tubes in vitro. Ginek. Pol. 36 no. 12:1415-1422 D '65.

1. Z II Kliniki Poloznictwa i Chorob Kobiecych AM w Gdansku (Kierownik: prof. dr. med. W. Gromadzki) i z Oddzialu Ochrony Radiologicznej Wojewodzkiej Stacji (Dyrektor: dr. W. Karmazyn).

CZECHOSLOVAKIA

LAKOMY, Zdenek; /Affiliation not given/.

"The Role of Science and of Research in the Providing of Living Conditions."

Prague, Vestnik Ceskoslovenske Akademie Ved, Vol 75, No 5,1966, pp 676 - 679

Abstract: The importance of surroundings in the life of an individual is discussed; it is necessary to provide not only food, but also a congenial atmosphere for living. While scientific development has contributed to improved production facilities, it should also provide means of maintaining the necessary natural beauty of the countryside. Building of new villages and towns should not deface the natural charms of the countryside. Once the dwellings are built, it is extremely difficult to change them. Up to now man has developed mainly as a servant of the machine; cultural development is lacking. Psychological and artistic aspect of the building of new homes must be emphasized. The influence of art on the physical and mental health of the individual must be studied. No references.

1/1

NAGIRNYAK F. I., LAKOTA, B. M.

"On the Unse of Single-Stage Machines in Concentration Plants of the Urals" Tsvet. Met. 14, No 10-11, Oct.-Nov. 1939.

U-1506, 4 Oct 1951.

SOV/137-57-11-20814

Translation from: Referativnyy zhurnal, Metallurgiya, 1957, Nr 11, p 24 (USSR)

AUTHOR: Lakota, B. M.

TITLE: Engineering Tests of the Mekhanobr-6A Flotation Machine at the Sredneural'sk Copper Smelter (Tekhnologicheskiye ispytaniya flotatsionnoy mashiny "Mekhanobr-6A" na Sredneural'skom medeplavil'nom zavode)

PERIODICAL: Obogashcheniye rud, 1956, Nr 6, pp 33

ABSTRACT: Engineering tests are run of the Mekhanobr-6A flotation machines, consisting of 16 cells, at the 2nd section of the SUMZ dressing mill. The functioning of the Mekhanobr-6A machine is compared with that of the 24-r machine, which is taken as a reference. It is shown that the efficiency of the new machine rises with the flow of feed pulp, attaining a maximum at 2.7 m^3/min. After identical periods of flotation, the Cu contents in the tailings of the Mekhanobr-6A machine is lower and recovery of Cu in the concentrate is higher than on the reference machine. The results of the tests show the desirability of loading the pulp in the feed of the Mekhanobr-6A at ~2 m^3/min. The flotation time resulting under these conditions is enough to yield tailings ready for the dump.

M. L.

Card 1/1

137-58-6-11341

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 6, p 12 (USSR)

AUTHORS: Rundkvist, V.A., Melekhova, Ye.L., Lakota, B.M.

TITLE: The "Mekhanobr-7" Flotation Machine (Flotatsionnaya mashina "Mekhanobr-7")

PERIODICAL: Obogashcheniye rud, 1957, Nr 3, pp 34-41

ABSTRACT: The results of shop tests of the "Mekhanobr-7" flotation machine, designed for large flotation plants having capacities of >2000 t/day, are presented. The volume of the chamber is 5.8 m^3, the impeller diameter is 750 mm, the rpm is 230. The impeller-and-stator unit is designed along the same lines as earlier Mekhanobr flotation machines. A general view, a cross section of the outlet, and a section through the impeller-stator assembly of the "Mekhanobr-7" machine are given.

A.Sh.

1. Ores--Flotation 2. Machines--Design

Card 1/1

LAKOTA, B.M., inzh.

Flotation of Estonian oil shales. Trudy Mekhanobr. no.102: 303-314 '57. (MIRA 11:9)
(Estonia--Oil shales) (Flotation)

SOV/127-58-11-8/16

AUTHORS: Fomin, Ya.I., Lakota, B.M., Grazhdantsev, I.I. and Kurova, M.D., Mining Engineers

TITLE: The Experiment of Concentrating Manganese Ores in Heavy Suspensions and by Flotation Under Industrial Conditions (Opyt obogashcheniya margantsevykh rud v tyazhelykh suspenziyakh i flotatsiyey v promyshlennykh usloviyakh)

PERIODICAL: Gornyy zhurnal, 1958, Nr 11, pp 32 - 44 (USSR)

ABSTRACT: The authors give a detailed report on experiments made in a concentration mill of the Mine Administration imeni Voroshilov of the Nikopol'-Marganets Trust, where manganese ores and manganese slime were concentrated on a special experimental assembly. The manganese ore was concentrated in heavy suspension and the ground ferrosilicon was used as weighing compound (fig. 2). This compound was in later experiments replaced by cinder, but the results of concentration were almost identical in both cases (tables 1-11). In the experiment with the flotation of manganese slime, a mixture of sodium carbonate (2.5-3 kg/ton), sulfate soap (1.3-1.5 kg/ton) and oxidized white spirit (0.5 kg/ton was

Card 1/2

The Experiment of Concentrating Manganese Ores in Heavy Suspensions and by Flotation Under Industrial Conditions

SOV/127-58-11-8/16

used as a flotation reagent. The scheme of concentration process is given in fig. 4, and the results of flotation - in tables 11-16. The results of both experiments showed the necessity of further improvement and simplification of concentration and flotation processes, though the results already obtained are satisfactory. In connection with these experiments the following scientists are cited by the authors: Z.S. Bogdanova, O.P. Bondarenko; and D.I. Frantsuzov. There are 16 tables, 5 schemes and 2 Soviet references.

Card 2/2 1. Manganese ores--Processing

LAKOTA, B.M.

BOGDANOVA, Z.S.; GORLOVSKIY, S.I.; and LAKOTA, B.M.

"Flotation of Brown Iron Ores and Slimes from Gravity Treatment of Manganese Ores."

report to be presented at the Intl. Mineral Processing Congress, London, England, 6-9 Apr 60.
All-Union Scientific Research Institute for Mechanical Processing of Minerals, Leningrad.

LAKOTA, B.M.; GALICH, V.M.

Flotation of primary manganese middlings of Nikopol' plants. Obog. rud 6 no.4:9-13 '61. (MIRA 15:1)
(Nikopol' region (Dnepropetrovsk Province)--Manganese ores)
(Flotation)

LAKOTA, B. M.

Air pump for the collapse of flotation froths. Obog. rud. 7 no.6:41 '62. (MIRA 16:4)

(Flotation—Equipment and supplies)

TITKOV, N.P.; BOGDANOVA, Z.S.; GALAKTIONOVA, K.N.; KUROVA, M.D.; LAKOTA, B.M.; OZOLIN, L.T.; Prinimali uchastiye: CHRKOVA, K.I.; ASHITKOV, Yu.R.; SMIRNOV, Ye.A.; PLATUNOV, A.A.; GALICH, V.M.; PATKOVSKAYA, N.A.; VLODAVSKIY, I.Kh.; GORLOVSKIY, S.I.

Outlook for introducing the flotation of ferrous metal ores. Gor. zhur. no.9:57-62 S '62. (MIRA 15:9)

1. Vsesoyuznyy nauchno-issledovatel'skiy i proyektnyy institut mekhanicheskoy obrabotki poleznykh iskopayemykh, Leningrad.
(Flotation) (Iron ores) (Manganese ores)

CZ/8-52(82)-10-13/39

AUTHOR: Lakota, Vladimír

TITLE: Chromatographic Determination of Phenol in Technical o-Cresol. (Chromatografické stanovení fenolu v technickém o-kresolu)

PERIODICAL: Chemické Listy, 1958, Vol.52(82), Nr 10, pp 1922 - 1925 (Czechoslovakia)

ABSTRACT: Technical o-cresol contains impurities of phenol and m-cresol. During the nitration of technical o-cresol to dinitro-o-cresol, picric acid is formed. Koller (Ref.2) found that the amount of picric acid formed was about 1%. The present method is based on the chromatographic separation of phenol from technical o-cresol and its photometric analysis with 2,6-dibromoquinone chlorimide. This method is very accurate and very sharp separation of the phenol from the other fraction is achieved. The optimum period for attaining maximum coloration of phenol with Gibbs' agent was also defined. This period depends on the extinction time (Fig.1). The minimum time of exposure was found to be 3 hours. During the determination of phenol in synthetic mixtures, a composition containing 1 ml 10 µg phenol, 10 µg m-cresol and 20 µg o-cresol was used. Fig.2

Card 1/3

Chromatographic Determination of Phenol in Technical o-Cresol

gives a graph for the determination of phenol, m-cresol and o-cresol in a synthetic sample, and Fig.3 a graph for the determination of phenol and m-cresol at excess o-cresol. The analysis of several other samples was carried out and results are tabulated (Table 1). During the determination of phenol in technical samples, the method is considerably simplified because only the phenol has to be determined. The time required for analysis is much shorter. It is also possible to shorten the chromatographic column to 35 cm. By using an Si column it is possible to determine small quantities of phenol besides excess cresol. Data obtained on 2 columns differed only by 3%. In some technical samples the content of phenol only amounted to 0.5%, but in one older sample 14.2% phenol was found. Reverse chromatography is more suitable than normal chromatography with a hydrophobic phase because during the former only a small quantity of the hydrophobic phase is anchored on the carrier. The eluates can be used for direct

Chromatographic Determination of Phenol in Technical o-Cresol

measurement so that no regeneration of the solvent is required. There are 1 Table, 3 Figures and 7 References: 1 German, 4 Czech, 1 English and 1 Russian.

ASSOCIATION: Východočeské chemické závody Synthesia, Vývojová skupina I. cechu, Pardubice-Semtín (Czech Chemical Factory Synthesia, Development Group, Pardubice-Semtín)

SUBMITTED: 5th November, 1957.

LAKOTA, Vladimir

Pilot plant verification of the process of ammonication of nitrosulphate fertilizers. Chem prum 12 no.3:113-116 Mr '62.

1. Vychodoceske chemicke zavody Synthesia, n.p., Prdubice - Semtin.

LAKOTA, Vladimir

Improvement of conditions in the production of combined nitrosulfate fertilizers. Chem prum 13 no.1:3-6 Ja '63.

1. Vychodoceske chemicke zavody Synthesia, n.p., Pardubice - Semtin.

LAKOTA, Vladimir

Contribution to the production of combined nitrosulfate fertilizers. Chem prum 13 no.5:230-236 My '63.

1. Vychodoceske chemicke zavody Sunthesia, n.p., Pardubice-Semtin.

LAKOTETSKIY, G.I., student; BAGRIY, Ya.I., nauchnyy rukovoditel'

Foam concrete with use of welled slags. Sbor. nauch. rab. stud. SNO DII no.2:105-107 '57. (MIRA 11:12)

1.Stroitel'nyy fakul'tet Donetskogo industrial'nogo instituta im. N.S. Khrushcheva.

(Air-entrained concrete) (Slag)

LAKOTKIN, N.I.

Resources for the development of labor productivity in Leningrad bakeries. Khleb. i kond. prom. 1 no.3:27-30 Mr '57. (MLRA 10:4)

1. Leningradskiy tekhnologicheskiy institut pishchevoy promyshlennosti.
(Leningrad--Bakers and bakeries)

LAKOTKIN, N.I.

LAKOTKIN, N.I.

Useful book on industrial potentialities ("Ways of increasing the productivity of labor in the food industry" by V.E. Donskov. Reviewed by N.I. Lakotkin). Khleb. i kond. prom. 1 no.5:47-48 My '57. (MLRA 10:6)

1. Leningradskiy tekhnologicheskiy institut pishchevoy promyshlennosti.

(Labor productivity) (Bakers and bakeries)
(Donskov, V.E.)

LAKOTKINA, O. YU.

Lakotkina, O. Yu. "Morphological changes in the blood and certain immunoserological reactions in immunization through the upper respiratory tract in rabbits", Sbornik trudov Leningr. nauch.-issled. in-ta po bol. zniyam ukha, nosa, gorla i rechi, Vol. IX, 1948, p. 121-36.

SO: U-3042, 11 March 54, (Letopis 'zhurnal 'nykh Statey No. 7, 1949)

LAKOTKINA, O. Yu.

LAKOTKINA, O. Yu. -- "Experimental Material on the Problem of Immunization through the Upper Respiratory Tracts." Leningrad State Order of Lenin Inst for the Advanced Training of Physicians imeni S. M. Kirov. Leningrad, 1955. (Dissertation for the Degree of Doctor in Medical Sciences).

So.: Knizhnaya Letopis', No. 2, 1956.

LAKOTKINA, O.Yu.starshiy nauchnyy sotrudnik

Administration of immunizing and therapeutic substances by inhalation. Vest.oto-rin 17 no.4:19-22 Jl-Ag '55.(MLRA 8:10)

1. Iz Leningradskogo nauchno-issledovatel'skogo instituta po boleznyam ukha, gorla, nosa i rechi (dir.-prof. I.A. Lopotko, nauchnyy rukovoditel' deystvitel'nyy chlen AMN SSSR V.I.Voyachek)

(INHALATION THERAPY,
inhalation of vaccines & drugs)
(VACCINES AND VACCINATION, administration,
inhalation)

LOPOTKO, I.A., professor; LAKOTKINA, O.Yu., starshiy nauchnyy sotrudnik

Creation of model in experimental tonsillitis. Vest.oto-rin. 18 no.5: 10-17 S-O '56. (MLRA 9:11)

1. Iz Leningradskogo nauchno-issledovatel'skogo instituta po boleznyam ukha, gorla, nosa i rechi (dir. - prof. I.A.Lopotko, nauchnyy rukovoditel' - deystvitel'nyy chlen AMN SSSR V.I.Voyachek)

(TONSILLITIS, exper.
technic in dogs)